

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
25 August 2005 (25.08.2005)

PCT

(10) International Publication Number  
WO 2005/078075 A3

(51) International Patent Classification: C12N 9/86,  
15/62, C07K 14/245, 14/31, 14/315, A61K 38/00, 39/00

(21) International Application Number:  
PCT/EP2005/050174

(22) International Filing Date: 17 January 2005 (17.01.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
04075430.1 11 February 2004 (11.02.2004) EP

(71) Applicant (for all designated States except US): UNIVER-  
SITE DE LIEGE [BE/BE]; Interface Entreprises-Univer-  
sité, Antheunis, Nicole, Quai Van Beneden, 25, B-4020  
Liège (BE).

(72) Inventors; and

(75) Inventors/Applicants (for US only): GIANNOTTA, Fab-  
rizio [BE/BE]; Rue E.Malvoz 10 bte 3, B-4300 Waremm

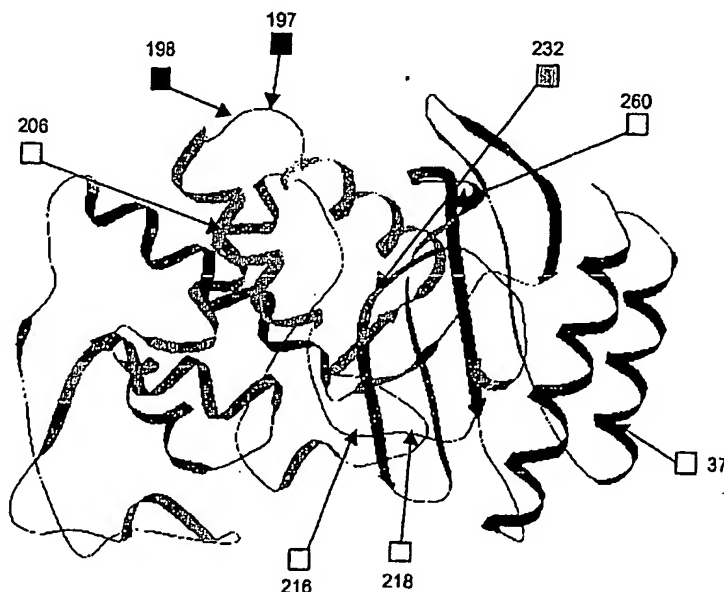
(BE). FILEE, Patrice [BE/BE]; Rue Lassaux, 33, B-4020  
Jupille (BE). GALLENI, Moreno [BE/BE]; Rue des  
Tombes, 14, B-4557 Fraiture (BE). FRERE, Jean-Marie  
[BE/BE]; Chemin de Sotrez, 85, B-4550 Nandrin (BE).  
JORIS, Bernard [BE/BE]; Chemin des Moutons, 66,  
B-4900 Spa (BE). BRANS, Alain [BE/BE]; Au Tiège, 21,  
B-4052 Beaufays (BE). RUTH, Nadia [BE/BE]; Rue de  
Stavelot, 17, B-4020 Liège (BE).

(74) Common Representative: UNIVERSITE DE LIEGE;  
Interface Entreprises-Université, Antheunis, Nicole, Quai  
Van Beneden, 25, B-4020 Liège (BE).

(81) Designated States (unless otherwise indicated, for every  
kind of national protection available): AE, AG, AL, AM,  
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,  
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,  
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ,  
TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA,  
ZM, ZW.

[Continued on next page]

(54) Title: HYBRID PROTEINS OF ACTIVE-SITE SERINE BETA-LACTAMASE



(57) Abstract: The present invention refers to a recombinant nucleotide sequence which codes upon expression for at least a part of a bifunctional hybrid active-site serine  $\beta$ -lactamase protein, wherein the  $\beta$ -lactamase protein is bearing at least one heterologous sequence, wherein in that the hybrid protein is having two functions, the first function is associated with the  $\beta$ -lactamase portion and the second function is associated with the heterologous sequence having a biological function which is different from the first function.



(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

**Declaration under Rule 4.17:**

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM,

**Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- with sequence listing part of description published separately in electronic form and available upon request from the International Bureau

(88) Date of publication of the international search report:  
8 December 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.